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As to the origin of the Sauropoda, Fürbringer holds that they sprang from amphibian ancestors whose quadrate was streptostylic.

II. The author regards the lizards and snakes as constituting two distinct orders. The snakes are not further considered. The Lacertilia are divided into five suborders, viz., Lacertilia vera, Varano-Dolichosauria, Mosasauria, Amphibænia, and Chamæleontia. Among the true Lacertilia, the Geckos are the lowest of living reptiles. In many characters the Varanidæ stand apart from other Lacertilia. The Mosasaurs are regarded as Lacertilia which at an early period branched off from perhaps near the ancestors of the Varanidæ, and became pelagic. The author finds in the Chamæleontia numerous points of resemblance with the Lacertilia vera, especially with the Uroplatidæ. They are hence placed closer to the lizards than in the system of Boulenger, but farther removed from them than in the system of Cope.

As regards the Ichthyopterygia, Fürbringer holds that they possess close relationships with the Rhynchocephalia, but are widely removed from the Sauropterygia. The Chelonia are not thought to be related to the Theromorpha, but rather to the Sauropterygia. The special phylogeny of the Chelonia is veiled in darkness. The Trionychidæ are considered to be the lowest in rank of living tortoises, the Pleurodira the highest. The isolated position in which *Dermochelys* has been placed by some writers is not accepted. The small group of Mesosauria of the Permian and Lower Triassic find their relationships with the Sauropterygia, Chelonia and Theromorpha; nevertheless they display many peculiarities.

The Theromorpha appear in the Permian and lower Triassic in great numbers and in varied forms; but with the Triassic they disappear. Many of them became highly specialized, attained considerable size, and developed, to a remarkable degree, stoutness of body and of its component parts. Their relationships are held to be with the Rhynchocephalia, but not close. They have no affinities with the Chelonia. In connection with this group the author discusses the origin of the Mammalia. His conclusion is that they have sprung from no group of reptiles, but directly from the Batrachia.

The Crocodilia are held to be the highest of living reptiles. They have distant connections with the Lacertilia and the Rhynchocephalia; closer ties with the Dinosaurs. The extinct groups Parasuchia and Pseudosuchia are to be retained close to the crocodiles.

In rank the Dinosauria stand above the Crocodilia, with which group they show many affinities. Two characters possessed by the higher forms lift the Dinosauria above the Crocodilia, the upright mode of progression and the development of cavities in the bones. The Dinosaurs are accepted as a single order, to be divided into two or three suborders.

The Pterosauria are estimated to be the highest in rank of all known Reptilia. They are specially related to the crocodiles and the Dinosaurs. Any close relationship to the birds is rejected.

III. Finally, the various orders are grouped by our author into subclasses. The first contains the Lacertilia, Ophidia, Rhynchocephalia and Ichthyopterygia; and for his subclass Haeckel's name Tocosauria is appropriated. The second subclass is constituted by the Theromorpha. A third subclass is formed of the Mesosauria, Sauropterygia and Chelonia; and to this the name Synaptosauria is applied. The Crocodilia, Dinosauria and Pterosauria make up the subclass of Archosauria.

O. P. HAY.

AMERICAN MUSEUM NATURAL HISTORY,
NEW YORK, July 4, 1901.

Allegany County, Maryland. By WM. B. CLARK,
State Geologist. Md. Geol. Surv., Baltimore, Md. 1900.

This royal octavo volume of 323 pages, accompanied by a folio of 6 pages containing topographic, geologic and soil maps of the county on a scale of one mile to the inch, is the first of a series of descriptive reports by counties to be published by the Maryland Survey. Not only the geology, mineral resources and physiography are described, but also the soils, climate, hydrography, magnetic declination, forests, flora and fauna. In addition to its general scientific value, it is of unusual interest to the county, presenting invaluable data for the farmer and manufacturer, and furnishing a

most excellent means of education and instruction to the inhabitants by interesting them in the local phenomena and the history of the mountains and the rocks forming them.

The physiography is by Cleveland Abbe, Jr., and the geology by Cleophas C. O'Hara. The county is in the western part of the State, embracing parts of the Allegheny Plateau and the Great Appalachian Valley. The rocks exposed in the plateau district are of Carboniferous and possibly Permian age and have been folded into a flat northeast-southwest syncline. The upturned resistant Pottsville conglomerate forms the eastern edge of the plateau in a straight even-crested ridge, and the interior of the plateau is composed of the softer overlying rocks protected in the syncline to the west. The Ridge district, embracing that part of the county in the Great Appalachian Valley, is composed of Silurian and Devonian rocks folded into numerous open parallel northeast-southwest folds, generally with steeper dips to the northwest, but not overturned or overthrust. Erosion has produced long parallel sharp-crested ridges separated by narrow valleys.

The remains of two physiographic plains have been recognized in the topography. The older, called the Schooley Plain, is preserved only in the crests of the higher ridges. The younger, called the Shenandoah Plain, is represented by the tops of low ridges and knolls between 900 and 1,100 feet elevation along the margins of the larger streams. This latter plain consisted of broad valleys between high ridges which were not reduced during that cycle of erosion. Two terraces of recent date were observed in the stream gorges, marking temporary halts in the downward cutting of the streams. Some very interesting stream adjustments are described. The geologic history of the region is also interestingly presented.

Among the mineral resources mentioned, the more important are coal, fireclay, cement rock and iron ore. Excellent steam coal has been mined in the county for many years, and the district is known as the Cumberland-Georges Creek Basin. Several important beds are mined and are distributed vertically through the Pottsville and Coal Measures. The Big

Vein or 14-foot Vein occurs in the upper part of the series, and is noted for its great size, purity and fine steam quality. The report on the economic products is by Wm. B. Clark, C. C. O'Hara, R. B. Rowe and H. Ries.

The soils of the county are represented on the geological map, the subdivisions corresponding to the divisions of the underlying rocks, but a separate legend giving the descriptions of the soils. Mechanical and chemical analyses of the various soils are given in tabular form and their value for agriculture is discussed. Clarence W. Dorsey is the author.

The hydrography and the remaining subjects presented in the report, as well as the soils, were surveyed in cooperation with branches of the U. S. Government and the reports are presented by members of the government corps.

The volume is handsomely printed and illustrated with half-tone cuts in the same excellent manner as in former publications of the Survey. The atlas accompanying the report is a high-grade lithographic production. The topographic map is that prepared by the U. S. Geological Survey in cooperation with the State. The colors and patterns used on the geologic maps are the same as those used by the U. S. Government and the results obtained are very pleasing. The publication by counties, however, makes it necessary to dissect the maps awkwardly and print them on three sheets, and makes the folio of unhandy size.

GEORGE W. STOSE.

WASHINGTON, D.C.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *American Geologist* for May contains a biographical sketch of Elkanah Billings with portrait by Henry M. Ami. Dr. J. B. Woodworth contributes an article on 'Cross-Banding of Strata by Current Action.' He describes micaceous bedding in the glacial sand near Lake Walden and attributes its formation to the vertical movements of the water about the crest of a current mark. This is followed by 'A Historical Outline of the Geological and Agricultural Survey of the State of Mississippi,' by E. W. Hilgard. This is followed by 'Reviews of Recent Geological Literature' and 'Scientific News.' The June number contains the follow-